

**Mutagenic Evaluation of Compound FDA 73-2, Monosodium Phosphate Anhydrous
Powdered, FCC Grade-6/30/75**

D25

LBI PROJECT #2468

MUTAGENIC EVALUATION OF

COMPOUND FDA 73-2

007558807

**MONOSODIUM PHOSPHATE ANHYDROUS
POWDERED, FCC GRADE**

SUBMITTED TO

**FOOD & DRUG ADMINISTRATION
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
ROCKVILLE, MARYLAND**

SUBMITTED BY

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JUNE 30, 1975



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EVALUATION SUMMARY

Compound FDA 73-2, Monosodium Phosphate Anhydrous Powdered FCC Grade, did not exhibit genetic activity in any of the in vitro assays employed in this evaluation.



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DATE: June 30, 1975

SPONSOR: Food and Drug Administration, Contract Number 223-74-2104

SUBJECT: Evaluation of Test Compound 007558807, Monosodium Phosphate Anhydrous, Powdered, FCC Grade FDA 73-2

I. OBJECTIVE

The objective of this study was to evaluate the test compound for genetic activity in microbial assays with and without the addition of mammalian metabolic activation preparations.

II. MATERIALS

A. Test Compound

1. Date Received: August, 1974
2. Description: White powder

B. Indicator Microorganisms

The following strains of indicator microorganisms were used in the evaluation:

Yeast Strain: Saccharomyces cerevisiae, strain D4

Bacteria Strains: Salmonella typhimurium, strains: TA-1535
TA-1537
TA-1538

C. Reaction Mixture

The following reaction mixture was employed in the activation tests:

<u>Component</u>	<u>Final Concentration/ml</u>
1. TPN (sodium salt)	6 μ M
2. Isocitric acid	49 μ M
3. Tris buffer, pH 7.4	28 μ M
4. $MgCl_2$	1.7 μ M
5. Tissue homogenate fraction	72 mg



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D. Tissue Homogenates and Supernatants

The tissue homogenates and 9,000 x g supernatants were prepared from tissues of the following mammalian species: Mouse-ICR random bred adult males; rat-Sprague-Dawley adult males; and primate-Macaca mulatta adult males.

E. Positive Control Compounds

Table 1 lists chemicals for positive controls in the direct and activation assays.

TABLE 1
POSITIVE CONTROLS USED IN DIRECT AND ACTIVATION ASSAYS

<u>Assay</u>	<u>Chemical</u> ^a	<u>Solvent</u>	<u>Probable Mutagenic Specificity</u>
Nonactivation	Ethyl methanesulfonate	Water or saline	BPS ^b
	2-Nitrofluorene	Dimethylsulfoxide ^c	FS ^b
	Quinacrine mustard	Water or saline	FS ^b
Activation	Dimethylnitrosamine	Water or saline	BPS ^b
	2-Acetylaminofluorene	Dimethylsulfoxide ^c	FS ^b

^a Concentrations given in the Results Section

^b BPS = base-pair substitution; FS = frameshift

^c Previously shown to be non-mutagenic

III. METHODS

A. Toxicity

The solubility, toxicity and doses for all chemicals were determined prior to screening.

Each chemical was tested for survival against the specific indicator strains over a range of doses to determine the 50% survival dose. Bacteria were tested in phosphate buffer, pH 7.4, for one hour at 37°C on a shaker. Yeasts were tested in phosphate buffer, pH 7.4, for four hours at 30°C on a shaker. The 50% survival curve and the 1/4 and 1/2 50% doses calculated.

If no toxicity was obtained for a chemical with a given strain, then a maximum dose of 5% (w/v) was used against the strain.

Unless otherwise specified, the doses calculated for the tests in buffer were applied to the activation tests. The solubility of the test chemical under treatment conditions is stated in the Results Section.



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B. Plate Tests

In the nonactivation procedure, approximately 10^9 cells of a log phase culture of the bacterial indicator strains were spread over the surface of a minimal plate, and a measured amount of the test chemical was placed in the center of the test plate. In activation tests, the test chemical was added to the cells, and an aliquot of the mixture was spread on the surface of the test plate. The reaction mixture (0.1 ml) plus tissue extract was then spotted on the surface of the plate. Positive and solvent controls were included. All plates were incubated at 37°C for four days and then scored. Each compound (Test, Positive Control and Solvent Control) was done in duplicate. Concentrations of the positive control compounds are listed in the Results Section.

C. Suspension Tests

1. Nonactivation

Log-phase bacteria and stationary-phase yeast cultures of the indicator organisms were grown in complete broth, washed and resuspended in 0.9% saline to densities of 1×10^9 cells/ml and 5×10^7 cells/ml, respectively. This constituted the working stock for tests of a group of test chemicals and their respective controls. Tests were conducted in plastic tissue culture plates. Cells plus appropriate volume(s) of the test chemical were added to the wells to give a final volume of 1.5 ml. The solvent replaced the test chemical in the negative controls. Treatment was at 30°C for four hours for yeast tests and at 37°C for one hour for bacterial tests. All flasks were shaken during treatment. Following treatment, the plates were set on ice. Aliquots of cells were removed, diluted in sterile saline (4°C) and plated on the appropriate complete media. Undiluted samples from flasks containing the bacteria were plated on minimal selective medium in reversion experiments. Samples from a 10^{-1} dilution of treated cells were plated on the selected media for enumeration of gene conversion with strain D4. Bacterial plates were scored after incubation for 48 hours at 37°C. The yeast plates were incubated at 30°C for 3-5 days before scoring.

2. Activation

Bacteria and yeast cells were grown and prepared as described in the nonactivation tests. Measured amounts of the test and control chemicals plus 0.25 ml of the stock-cell suspension were added to wells of the Linbro plate containing the appropriate tissue fraction and reaction mixture. All flasks (bacteria and yeast) were incubated at 37°C in an oxygen atmosphere with shaking. The treatment times as well as the dilutions, plating procedures and scoring of the plates were the same as described for nonactivation tests.



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D. Preparation of Tissue Homogenates and 9,000 x g Cell Fractions

Male animals (sufficient to provide the necessary quantities of tissues) were killed by cranial blow, decapitated and bled. Organs were immediately dissected from the animal using aseptic techniques and placed in ice-cold 0.25 M sucrose buffered with Tris at pH of 7.4. Upon collection of the desired quantity of organs, they were washed twice with fresh buffered sucrose and completely homogenized with a motor-driven homogenizing unit at 4°C. The whole organ homogenate obtained from this step was divided into two samples. One sample was frozen at -80°C and the other was centrifuged for 20 minutes at 9,000 x g in a refrigerated centrifuge. The supernatant from the centrifuged sample was retained and frozen at -80°C. These two frozen samples were used for the activation studies.

E. Data Recording and Reporting

Following the specified incubation periods all population plates were scored by an automatic colony counter and the results from each plate of a set were recorded, in ink, on data processing forms. All minimal or other types of selective media plates were hand scored and the results recorded along with the respective population data. Other relevant experimental data were recorded on experimental definition forms. For bacteria strains the number of colonies recorded from either the population or selective plates represents that number in 1 ml of test suspension plated. The numbers recorded for the yeast strain D4 represent the number in 0.5 ml of test suspension plated. The data were then processed and printed from a computer program.



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IV. RESULTS SECTION

A. Solubility Properties of the Test Compound

1. Name or code designation of the test compound: 007558807, Monosodium Phosphate Anhydrous, Powdered, FCC Grade
2. Test solvent: Saline
3. Solubility of the test compound under treatment conditions: Soluble under treatment conditions
4. Additional comments: White powder

B. Toxicity and Dosage Determinations for the Test Compound

1. Test date for toxicity determination: March 25, 1975
2. The 50% survival level was determined for bacteria and yeast indicator organisms by conducting survival curves with the test compound at the following concentrations:

Percent Concentration (w/v or v/v)

10.0
1.0
0.1
0.01
0.001

3. Concentrations of the test compound used in the mutagenicity tests:

<u>Dose</u>	<u>Percent Concentration</u>	
	<u>Bacteria</u>	<u>Yeast</u>
1/4 50% Survival	0.625	2.5
1/2 50% Survival	1.250	5.0
50% Survival	2.500	10.0
Plate Tests	1.250	--



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V. SUMMARY OF TEST RESULTS

Plate Tests

A. Name or code designation of the test compound: 007558807

B. Test date: April 25, 1975

C. Concentration of the test compound: 1.25%

Test	Species	Tissue	REVERTANTS/PLATE					
			TA-1535		TA-1537		TA-1538	
			<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>
1. <u>Non-activation</u>								
Solvent Control	---	---	40	41	11	13	27	23
Positive Control ^a	---	---	>10 ³	>10 ³	183	113	98	129
Test Compound	---	---	44	46	8	14	15	22
2. <u>Activation</u>								
Negative Control	---	---	8	12	7	7	6	18
Solvent Control	---	---	13	4	15	16	23	21
Reaction Mixture Control	---	---	7	10	8	8	10	18
Positive Control ^b	Mouse	Liver	>10 ³	>10 ³	41	43	307	420
Positive Control		Lung	11	13	5	12	72	30
Positive Control		Testes	9	11	22	10	19	22
Positive Control	Rat	Liver	>10 ³	>10 ³	41	45	327	340
Positive Control		Lung	12	9	7	7	26	29
Positive Control		Testes	9	11	16	10	14	11
Positive Control	Monkey	Liver	390	329	44	41	363	310
Positive Control		Lung	11	9	7	10	21	24
Positive Control		Testes	9	12	16	6	17	12
Test Compound	Mouse	Liver	19	16	10	22	24	20
Test Compound		Lung	23	20	7	5	17	21
Test Compound		Testes	17	24	8	9	20	31
Test Compound	Rat	Liver	16	14	10	14	23	15
Test Compound		Lung	21	18	6	9	20	18
Test Compound		Testes	17	22	7	10	21	29
Test Compound	Monkey	Liver	19	15	15	24	20	14
Test Compound		Lung	23	16	8	8	18	21
Test Compound		Testes	21	20	7	8	19	29

a TA-1535 EMS 10 µl/plate
 TA-1537 QM 20 µg/plate
 TA-1538 NF 100 µg/plate

b TA-1535 DMNA 50 µM/plate
 TA-1537 AAF 100 µg/plate
 TA-1538 AAF 100 µg/plate



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DATA TABLE TERMS AND ABBREVIATIONS

ABBREVIATION OR TERM	DEFINITION OR EXPLANATION
COMPOUND	Client designated compound number appears in this column.
TEST CODES	<div> <div>NAN = Nonactivation: Solvent Control</div> <div>NAP = Nonactivation: Positive Control</div> <div>NA1 = Nonactivation: Test Compound Dose 1</div> <div>NA2, etc. = Reflects the other dose level(s)</div> <div>A+C = Negative Chemical Control</div> <div>A-C = Activation: Solvent Control</div> <div>ACP = Activation: Positive Control</div> <div>ACT = Activation: Test Compound</div> <div>A+T = Activation: Tissue Control</div> <div>LI = Liver Tissue Activation Fraction</div> <div>LU = Lung Tissue Activation Fraction</div> <div>KI = Kidney Tissue Activation Fraction</div> <div>TE = Testes Tissue Activation Fraction</div> <div>1,2, etc. = Dose Levels</div> </div>
CONCENTRATION	All test compound dose levels are expressed as a whole number followed by an exponent (negative) identified by the appropriate units. Example: 0025-2PCT = 0.25 percent concentration
POPU	Total number of viable cells in the plating sample raised to some exponent printed directly below the abbreviation (i.e., EP + 6 = $\times 10^6$).
MUT 1	Total number of mutants or convertants obtained from the sample plated raised to some exponent printed directly below the abbreviation (i.e., EP + 0 = 10^0). For strain D4, MUT 1 represents the number of ADE+ convertants.
MUT 2	Only used for strain D4 and represents the number of TRY+ convertants in the plated sample.
FREQ 1	The calculated mutation or gene conversion frequency times the negative exponent written directly below. For strain D4, FREQ 1 represents the ADE+ value.
FREQ 2	Only used for strain D4 and represents the TRY+ conversion frequency.
CONTAM	Presence of contamination on any plates.



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DATA TABLE TERMS AND ABBREVIATIONS (continued)

ABBREVIATION OR TERM	DEFINITION OR EXPLANATION
AAF	2-Acetylaminofluorene
DMSO	Dimethylsulfoxide
DMN	Dimethylnitrosamine
EMS	Ethyl Methanesulfonate
QM	Quinacrine Mustard
NF	Nitrofluorene
SPECIES	Animal Strains
SPRDAW	Sprague Dawley Rats
ICRFLO	Flow ICR Random Bred Mice
RHESUS	Rhesus Monkey (<u>Macaca mulatta</u>)
MIXEDB	Dog, Mixed Breed
NEWZEA	New Zealand White Rabbit



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LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 07/08/75

SPECIES / COMPOUND 007558807

TEST	ORG	TA1538 HIS EX-8	TA1535 HIS EX-8	TA1537 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
NAN		7.58	23.63	15.00	1.07	0.93
NAP		376.09	688.06	666.27	2.08	117.36
NA1		13.02	14.14	10.00	1.81	1.27
NA2		11.71	14.62	8.08	2.74	1.46



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LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 07/08/75

SPECIES ICRFLO/MOUSE

COMPOUND 007558807

TEST	ORG	TA1538 HIS EX-8	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1537 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5	TA1537 HIS EX-8
ACT	A+C	18.11	4.61	10.20		2.12	1.52	
ACT	A+T	14.08	9.87	14.37		3.14	5.10	
ACT	A-C	7.98	4.84	10.54	8.63	2.91	0.83	9.15
ACT	PLI	63.82	1314.89	30.99		4.28	5.26	
ACT	PLU	15.85	9.51	23.64		2.87	3.05	
ACT	PTE	16.82	14.29	23.53		3.92	0.68	
ACT	LI1	18.66	5.56	54.74		2.65	2.39	16.18
ACT	LI2	10.58	3.09	40.78		3.09	2.88	8.30
ACT	LU1	13.68	6.80	13.36		1.48	1.28	
ACT	LU2	6.64	2.38	43.95	11.21	2.27	2.03	
ACT	TE1	12.31	1.28	15.53		5.58	2.88	
ACT	TE2	11.78	0.67	15.38		3.05	3.05	



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LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 07/08/75

SPECIES SPRDAW/RAT

COMPOUND 007558807

TEST	ORG	TA1538 HIS EX-8	TA1535 HIS EX-8	TA1537 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
ACT	A+C	3.73	2.82	5.33	1.49	2.48
ACT	A+T	6.20	20.67	9.50	3.82	3.65
ACT	A-C	4.15	3.33	4.84	1.61	1.93
ACT	PLI	38.29	819.28	19.72	4.20	4.06
ACT	PLU	5.79	7.73	13.56	5.45	3.23
ACT	PTE	5.65	3.07	10.07	4.09	1.57
ACT	LI1	7.86	1.49	8.47	3.68	1.70
ACT	LI2	6.53	2.16	7.78	2.50	1.48
ACT	LU1	5.67	5.45	10.48	3.09	2.26
ACT	LU2	8.93	5.28	9.21	2.39	2.39
ACT	TE1	6.77	10.05	10.25	3.16	0.61
ACT	TE2	7.89	11.00	13.04	2.15	0.89



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LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 07/08/75

SPECIES RHESUS/MONKEY

COMPOUND 007558807

TEST	ORG	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
ACT	A+C	18.01	9.85	11.55	1.35	1.35
ACT	A+T	15.28	7.78	16.84	2.32	1.93
ACT	A-C	10.14	9.39	10.94	0.70	0.17
ACT	PLI	672.50	31.09	62.27	7.67	6.39
ACT	PLU	20.28	18.71	6.06	3.63	1.68
ACT	PTE	9.66	8.87	19.29	1.36	2.87
ACT	LI1	14.49	14.08	11.93	3.72	1.64
ACT	LI2	9.60	14.91	13.54	1.57	1.46
ACT	LU1	14.45	11.54	9.09	1.24	1.99
ACT	LU2	18.51	8.41	6.30	3.46	2.80
ACT	TE1	15.79	9.05	15.93	2.60	1.36
ACT	TE2	10.19	7.96	16.72	2.84	1.84

VI. INTERPRETATION OF RESULTS AND CONCLUSIONS

Compound 007558807, Monosodium Phosphate-anhydrous Powdered, FCC Grade, was tested for genetic activity in a series of in vitro microbial assays with and without metabolic activation. The following results were obtained:

A. Salmonella typhimurium

1. Plate tests

At a concentration of 1.25%, 007558807, did not exhibit any mutagenic activity for the bacterial indicator organisms in direct or activation plate tests.

2. Nonactivation suspension tests

The results of these tests were negative.

3. Activation suspension tests

The results of these tests were negative. The LI1, LI2 and LU2 dose levels with TA-1537 using mouse tissue were repeated because of increased mutant frequencies. The repeat tests were negative.

B. Saccharomyces cerevisiae

1. Nonactivation suspension tests

The results of these tests were negative.

2. Activation suspension tests

The results of these tests were negative.

C. Conclusions

The test compound, Monosodium Phosphate Anhydrous, Powdered, FCC Grade, did not exhibit genetic activity in the assays employed in this evaluation.

Submitted by:

David Brusick
David Brusick, Ph.D.
Director of Genetics



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APPENDIX
Tabulation of Data



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104				PROJECT 02468	
EXPERIMENT 517504		DETECTOR TA1535		SPECIES		/	DATE - 07/08/75
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	NAN		SALINE	0567	0134	23.63	0
	NAP		EMS 0.002 %	0620	4266	688.06	0
007558807	NA1		0125-2 PCT.	0707	0100	14.14	0
007558807	NA2		0625-3 PCT.	0677	0099	14.62	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104		PROJECT 02468		DATE - 07/08/75	
EXPERIMENT 516304		DETECTOR TA1537		SPECIES /			
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	NAN		SALINE	0140	0021	15.00	0
	NAP		QM 1.0 UG/ML	0169	1126	666.27	0
007558807	NA1		0125-2 PCT.	0170	0017	10.00	0
007558807	NA2		0625-3 PCT.	0198	0016	8.08	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104		PROJECT 02468		DATE - 07/08/75	
EXPERIMENT 512205		DETECTOR TA1538		SPECIES /			
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	NAN		DMSO	0528	0040	7.58	0
	NAP		NF 125 UG-ML	0368	1384	376.09	0
007558807	NA1		0125-2 PCT.	0315	0041	13.02	2
007558807	NA2		0625-3 PCT.	0299	0035	11.71	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 513404 DETECTOR 0000D4 SPECIES / DATE - 07/08/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	NAN		SALINE	0750	0008	0007	1.07	0.93	2
	NAP		EMS 1.0 %	0288	0006	0338	2.08	117.36	0
007558807	NA1		0005-0 PCT.	0553	0010	0007	1.81	1.27	1
007558807	NA2		0025-1 PCT.	0548	0015	0008	2.74	1.46	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104		PROJECT 02468		DATE - 07/08/75	
EXPERIMENT 513504		DETECTOR TA1535		SPECIES ICRFLO/MOUSE			
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	0456	0021	4.61	0
	A+T		***NO MATCH***	0233	0023	9.87	2
	A-C		SALINE	0558	0027	4.84	1
	ACP	LI	DMN 50 UM/ML	0188	2472	1314.89	2
	ACP	LU	DMN 50 UM/ML	0263	0025	9.51	2
	ACP	TE	DMN 50 UM/ML	0287	0041	14.29	2
007558807	ACT	LI1	0125-2 PCT.	0306	0017	5.56	2
007558807	ACT	LI2	0625-3 PCT.	0324	0010	3.09	2
007558807	ACT	LU1	0125-2 PCT.	0485	0033	6.80	0
007558807	ACT	LU2	0625-3 PCT.	0462	0011	2.38	2
007558807	ACT	TE1	0125-2 PCT.	0312	0004	1.28	2
007558807	ACT	TE2	0625-3 PCT.	0297	0002	0.67	2



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 515406 DETECTOR TA1537 SPECIES ICRFLO/MOUSE DATE - 07/08/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0294	0030	10.20	0
	A+T		***NO MATCH***	0167	0024	14.37	3
	A-C		DMSO	0313	0033	10.54	0
	ACP	LI	AAF 800 UG/ML	0071	0022	30.99	2
	ACP	LU	AAF 800 UG/ML	0055	0013	23.64	0
	ACP	TE	AAF 800 UG/ML	0102	0024	23.53	0
007558807	ACT	LI1	0125-2 PCT.	0095	0052	54.74	2
007558807	ACT	LI2	0625-3 PCT.	0103	0042	40.78	2
007558807	ACT	LU1	0125-2 PCT.	0277	0037	13.36	0
007558807	ACT	LU2	0625-3 PCT.	0248	0109	43.95	0
007558807	ACT	TE1	0125-2 PCT.	0219	0034	15.53	0
007558807	ACT	TE2	0625-3 PCT.	0221	0034	15.38	0



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COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 517005 DETECTOR TA1537 SPECIES ICRFLO/MOUSE DATE - 07/08/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POP EP+6	MUT1 EP+0	FREQ EP-8	CONTAM
	A-C		DMSO	1020	0088	8.63	2
007558807	ACT	LU2	0625-3 PCT.	0214	0024	11.21	3

ADDITIONAL REPEAT DATE - 07/16/75

	A-C		DMSO	0164	0015	9.15	0
007558807	ACT	LI1	0125-2 PCT.	0136	0022	16.18	1
007558807	ACT	LI2	0625-3 PCT.	0265	0022	8.30	1



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 512802 DETECTOR TA1538 SPECIES ICRFLO/MOUSE

DATE - 07/08/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POP EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0762	0138	18.11	0
	A+T		***NO MATCH***	0206	0029	14.08	2
	A-C		DMSO	0489	0039	7.98	0
	ACP	LI	AAF 800 UG/ML	0304	0194	63.82	2
	ACP	LU	AAF 800 UG/ML	0429	0068	15.85	0
	ACP	TE	AAF 800 UG/ML	0446	0075	16.82	0
007558807	ACT	LI1	0125-2 PCT.	0209	0039	18.66	2
007558807	ACT	LI2	0625-3 PCT.	0274	0029	10.58	2
007558807	ACT	LU1	0125-2 PCT.	0285	0039	13.68	0
007558807	ACT	LU2	0625-3 PCT.	0452	0030	6.64	0
007558807	ACT	TE1	0125-2 PCT.	0333	0041	12.31	2
007558807	ACT	TE2	0625-3 PCT.	0382	0045	11.78	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 515505 DETECTOR 0000D4 SPECIES ICRFLO/MOUSE DATE - 07/08/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	A+C		DMN 90 UM/ML	0660	0014	0010	2.12	1.52	0
	A+T		***NO MATCH***	0765	0024	0039	3.14	5.10	2
	A-C		SALINE	0722	0021	0006	2.91	0.83	0
	ACP	LI	DMN 90 UM/ML	0608	0026	0032	4.28	5.26	0
	ACP	LU	DMN 90 UM/ML	0557	0016	0017	2.87	3.05	4
	ACP	TE	DMN 90 UM/ML	0739	0029	0005	3.92	0.68	4
007558807	ACT	LI1	0005-0 PCT.	1131	0030	0027	2.65	2.39	0
007558807	ACT	LI2	0025-1 PCT.	0939	0029	0027	3.09	2.88	4
007558807	ACT	LU1	0005-0 PCT.	1012	0015	0013	1.48	1.28	0
007558807	ACT	LU2	0025-1 PCT.	0836	0019	0017	2.27	2.03	0
007558807	ACT	TE1	0005-0 PCT.	0556	0031	0016	5.58	2.88	1
007558807	ACT	TE2	0025-1 PCT.	0590	0018	0018	3.05	3.05	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 513302 DETECTOR TA1535 SPECIES SPRDAW/RAT

DATE - 07/08/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POFU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	0815	0023	2.82	0
	A+T		***NO MATCH***	0150	0031	20.67	2
	A-C		SALINE	0991	0033	3.33	0
	ACP	LI	DMN 50 UM/ML	0166	1360	819.28	0
	ACP	LU	DMN 50 UM/ML	0220	0017	7.73	2
	ACP	TE	DMN 50 UM/ML	0163	0005	3.07	2
007558807	ACT	LI1	0125-2 PCT.	0335	0005	1.49	2
007558807	ACT	LI2	0625-3 PCT.	0370	0008	2.16	2
007558807	ACT	LU1	0125-2 PCT.	0275	0015	5.45	2
007558807	ACT	LU2	0625-3 PCT.	0246	0013	5.28	0
007558807	ACT	TE1	0125-2 PCT.	0189	0019	10.05	0
007558807	ACT	TE2	0625-3 PCT.	0100	0011	11.00	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 517102 DETECTOR TA1537 SPECIES SPRDAW/RAT DATE - 07/08/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	1425	0076	5.33	0
	A+T		***NO MATCH***	0600	0057	9.50	0
	A-C		DMSO	0785	0038	4.84	0
	ACP	LI	AAF 800 UG/ML	0999	0197	19.72	0
	ACP	LU	AAF 800 UG/ML	0804	0109	13.56	0
	ACP	TE	AAF 800 UG/ML	1073	0108	10.07	0
007558807	ACT	LI1	0125-2 PCT.	0874	0074	8.47	0
007558807	ACT	LI2	0625-3 PCT.	0925	0072	7.78	0
007558807	ACT	LU1	0125-2 PCT.	0620	0065	10.48	2
007558807	ACT	LU2	0625-3 PCT.	0630	0058	9.21	2
007558807	ACT	TE1	0125-2 PCT.	0605	0062	10.25	2
007558807	ACT	TE2	0625-3 PCT.	0483	0063	13.04	2



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 514702 DETECTOR TA1538 SPECIES SPRDAW/RAT

DATE - 07/08/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0993	0037	3.73	0
	A+T		***NO MATCH***	0468	0029	6.20	0
	A-C		DMSO	1036	0043	4.15	0
	ACP	LI	AAF 800 UG/ML	0820	0314	38.29	0
	ACP	LU	AAF 800 UG/ML	1071	0062	5.79	0
	ACP	TE	AAF 800 UG/ML	0814	0046	5.65	0
007558807	ACT	LI1	0125-2 PCT.	0891	0070	7.86	0
007558807	ACT	LI2	0625-3 PCT.	1103	0072	6.53	0
007558807	ACT	LU1	0125-2 PCT.	1375	0078	5.67	0
007558807	ACT	LU2	0625-3 PCT.	0862	0077	8.93	0
007558807	ACT	TE1	0125-2 PCT.	0827	0056	6.77	2
007558807	ACT	TE2	0625-3 PCT.	0798	0063	7.89	2



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 513202 DETECTOR 000004 SPECIES SPRDAW/RAT DATE - 07/08/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	A+C		DMN 90 UM/ML	0606	0009	0015	1.49	2.48	0
	A+T		***NO MATCH***	0576	0022	0021	3.82	3.65	6
	A-C		SALINE	0622	0010	0012	1.61	1.93	1
	ACP	LI	DMN 90 UM/ML	0690	0029	0028	4.20	4.06	4
	ACP	LU	DMN 90 UM/ML	0495	0027	0016	5.45	3.23	0
	ACP	TE	DMN 90 UM/ML	0635	0026	0010	4.09	1.57	6
007558807	ACT	LI1	0005-0 PCT.	0707	0026	0012	3.68	1.70	3
007558807	ACT	LI2	0025-1 PCT.	0879	0022	0013	2.50	1.48	6
007558807	ACT	LU1	0005-0 PCT.	0972	0030	0022	3.09	2.26	0
007558807	ACT	LU2	0025-1 PCT.	0670	0016	0016	2.39	2.39	2
007558807	ACT	TE1	0005-0 PCT.	0823	0026	0005	3.16	0.61	0
007558807	ACT	TE2	0025-1 PCT.	0790	0017	0007	2.15	0.89	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104		PROJECT 02468		DATE - 07/08/75	
EXPERIMENT 512707		DETECTOR TA1535		SPECIES RHESUS/MONKEY			
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	0311	0056	18.01	0
	A+T		***NO MATCH***	0144	0022	15.28	0
	A-C		SALINE	0414	0042	10.14	0
	ACP	LI	DMN 50 UM/ML	0360	2421	672.50	2
	ACP	LU	DMN 50 UM/ML	0143	0029	20.28	0
	ACP	TE	DMN 50 UM/ML	0321	0031	9.66	2
007558807	ACT	LI1	0125-2 PCT.	0207	0030	14.49	0
007558807	ACT	LI2	0625-3 PCT.	0198	0019	9.60	0
007558807	ACT	LU1	0125-2 PCT.	0353	0051	14.45	0
007558807	ACT	LU2	0625-3 PCT.	0281	0052	18.51	0
007558807	ACT	TE1	0125-2 PCT.	0209	0033	15.79	0
007558807	ACT	TE2	0625-3 PCT.	0265	0027	10.19	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104			PROJECT 02468			DATE - 07/08/75	
EXPERIMENT 515303	DETECTOR TA1537	SPECIES RHESUS/MONKEY					
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0721	0071	9.85	0
	A+T		***NO MATCH***	0180	0014	7.78	1
	A-C		DMSO	0767	0072	9.39	0
	ACP	LI	AAF 800 UG/ML	0119	0037	31.09	0
	ACP	LU	AAF 800 UG/ML	0278	0052	18.71	0
	ACP	TE	AAF 800 UG/ML	0293	0026	8.87	0
007558807	ACT	LI1	0125-2 PCT.	0142	0020	14.08	0
007558807	ACT	LI2	0625-3 PCT.	0161	0024	14.91	0
007558807	ACT	LU1	0125-2 PCT.	0442	0051	11.54	0
007558807	ACT	LU2	0625-3 PCT.	0452	0038	8.41	0
007558807	ACT	TE1	0125-2 PCT.	0210	0019	9.05	0
007558807	ACT	TE2	0625-3 PCT.	0314	0025	7.96	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 514802 DETECTOR TA1538 SPECIES RHESUS/MONKEY

DATE - 07/08/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0779	0090	11.55	0
	A+T		***NO MATCH***	0380	0064	16.84	1
	A-C		DMSO	0594	0065	10.94	0
	ACP	LI	AAF 800 UG/ML	0546	0340	62.27	0
	ACP	LU	AAF 800 UG/ML	1106	0067	6.06	0
	ACP	TE	AAF 800 UG/ML	0648	0125	19.29	0
007558807	ACT	LI1	0125-2 PCT.	0486	0058	11.93	0
007558807	ACT	LI2	0625-3 PCT.	0458	0062	13.54	0
007558807	ACT	LU1	0125-2 PCT.	0517	0047	9.09	0
007558807	ACT	LU2	0625-3 PCT.	0603	0038	6.30	0
007558807	ACT	TE1	0125-2 PCT.	0477	0076	15.93	0
007558807	ACT	TE2	0625-3 PCT.	0341	0057	16.72	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 514904 DETECTOR 0000D4 SPECIES RHESUS/MONKEY DATE - 07/08/75

COMPOUND	TEST	ORG ID	CONCENTRATION	FOPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	A+C		DMN 90 UM/ML	0594	0008	0008	1.35	1.35	1
	A+T		***NO MATCH***	0518	0012	0010	2.32	1.93	0
	A-C		SALINE	0574	0004	0001	0.70	0.17	0
	ACP	LI	DMN 90 UM/ML	0626	0048	0040	7.67	6.39	0
	ACP	LU	DMN 90 UM/ML	0716	0026	0012	3.63	1.68	0
	ACP	TE	DMN 90 UM/ML	0661	0009	0019	1.36	2.87	0
007558807	ACT	LI1	0005-0 PCT.	0672	0025	0011	3.72	1.64	1
007558807	ACT	LI2	0025-1 PCT.	0891	0014	0013	1.57	1.46	0
007558807	ACT	LU1	0005-0 PCT.	0806	0010	0016	1.24	1.99	0
007558807	ACT	LU2	0025-1 PCT.	0751	0026	0021	3.46	2.80	0
007558807	ACT	TE1	0005-0 PCT.	0807	0021	0011	2.60	1.36	0
007558807	ACT	TE2	0025-1 PCT.	0705	0020	0013	2.84	1.84	0